

REMARKS

The present application includes claims 1-22. Claims 1-22 have been rejected by the Examiner. By this Amendment, claims 1, 7 and 10 have been amended. Claims 12 and 22 have been canceled and incorporated into the independent claims in order to expedite allowance of the pending claims.

Independent claims 1, 7, and 10 have been amended to specify that a first location transmits ultrasound signals from a transducer array, and a second location serves as a receiver. The receiver is a single element transducer that separate from and independent of the transmitter. The Applicant points the Examiner to Fig. 3 of the present application and its associated description for an exemplary illustration of a separate transmitter and receiver system. Such limitations are not taught by the prior art of record, and the Applicant respectfully requests allowance of these amended claims and their dependents.

Claims 1, 6-16, and 22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Philips (U.S. Pat. No. 6,213,947) in view of Golland (U.S. Pat. App. Pub. No. 2004/0006271). The Applicant respectfully submits that the claims of the present application are allowable over Philips in view of Golland for at least the following reasons.

As previously discussed in the last response, while Philips applies codes to transmitted ultrasound signals (Abstract; col. 3, line 51 – col. 4, line 10), the received signals in Philips are clearly beamformed (Fig. 1; col. 4, lines 29-31 and lines 53-56). The Applicant previously amended independent claims 1, 7 and 10 to specific that received echo signals are not beamformed but are instead processed based on their encoding to determine directional

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information. The Examiner has added Golland to generate ultrasound images without beaming in transmission or receipt of ultrasound waves and resulting echo signals.

However, neither Phillips nor Golland teaches, suggests, motivates, or otherwise discloses transmitting encoded ultrasound signals from a first location, where the first location includes a transducer array for transmitting said plurality of ultrasound signals, and receiving echo signals at a second location, where the second location includes a single element transducer separate from and independent of the transmitter dedicated to receiving said echo signals. This limitation was recited in dependent claim 22, pending as of the examiner's last review and search, and now incorporated into independent claims 1, 7, and 10. Since the subject matter added to claims 1, 7, and 10 has already been searched by the Examiner and is not found in the cited art of record, the Applicant submits that no new search is required, and the pending claims 1-11 and 13-21 should be allowable.

More particularly, the Applicant respectfully submits that the broadest reasonable interpretation of the disclosure of Philips (and/or the disclosure of Golland) does not provide at least one transducer being independent, separate from the transmitting transducer, and dedicated to receiving echo signals. Rather, Philips uses a single transducer array 12, operated to both transmit and receive via the transmit and receive switches 14. Transmitted signals are beamformed with the transmit beamformer 16, and received echo signals are beamformed with the receive beamformer 18. See, e.g., Figs. 1 and 21; col. 3, lines 38-50 and 59-62; and col. 4, lines 17-25. There is no separate receive device or a discussion of segregating transmit and receive functionality.

Similarly, in Golland, a combined array 16 of elements, each element able to transmit/receive, is used to transmit ultrasound waves and receive echo signals to generate an

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imaging volume. See, e.g., Figs. 1 and 5 and pg. 4, para. [0045]. The Applicant notes that in describing the transducer array in paragraph [0045], Golland notes that each transducer can transmit and can also receive. Thus, as in Philips, Golland clearly contains no disclosure of a separate receive device.

For at least these reasons, the Applicant respectfully submits that claims 1 and 6-16 should be allowable over the cited art of record.

Claims 2-5 and 17-21 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Philips in view of Golland and in further view of Stein (U.S. Pat. App. Pub. No. 2002/0100326). The Applicant traverses the Examiner's rejection for at least the following reasons.

As noted by the Examiner with respect to claims 2-5, neither Philips nor Golland teaches determining a position of a structure producing an encoded echo in response to impact based on a time of transmission or based on an angle of transmission. With respect to claims 17-21, the Examiner notes that neither Philips nor Golland teaches a processor for determining position of a scatterer based on a time of transmission or angle of transmission. However, as Stein uses a transducer 44 for both transmitting and receiving, Stein does not cure the defects present in both Philips and Golland with respect to the independent claims 1 and 10 from which claims 2-5 and 17-21 depend, respectively.

Thus, for at least these reasons, the Applicant respectfully submits that claims 2-5 and 17-21 should be allowable over the cited art.

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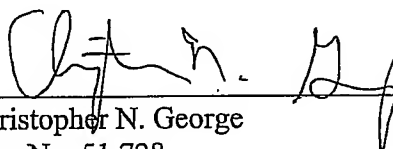
CONCLUSION

It is submitted that the present application is in condition for allowance and a Notice of Allowability is respectfully solicited. If the Examiner has any questions or the Applicant can be of any assistance, the Examiner is invited and encouraged to contact the Applicant at the number below.

The Commissioner is authorized to charge any necessary fees or credit any overpayment to the Deposit Account of GTC, Account No. 070845.

Respectfully submitted,

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